

5      **FIELD OF THE INVENTION**

          The present invention relates to the field of diamond cuts. Specifically, the present invention is directed toward diamond cut having a brilliant cut pavilion and a brilliant cut crown. The crown has a flat octagonal table, eight upper girdle facets and eight corner facets. The pavilion has a culet, eight rib lines and multiple lower girdle facets, corner facets and bezel facets, and the lower girdle, bezel star and corner facets. All the facets are at significantly different angles of inclination with the table from the prior art diamond cuts. The upper corner facets are spaced from the girdle so that a prong of a setting can be placed over the crown without covering the corner facet.

## 5 BACKGROUND OF THE INVENTION

There are a variety of step and brilliant gemstone cuts available on the market that achieve good coefficients of brilliancy, dispersion and scintillation. However, due to several problems that the prior art presents there is a long felt but unfulfilled need for a better gemstone cut. The present invention fulfils that long felt need by providing a brilliant cut that achieves excellent coefficients of brilliancy, dispersion and scintillation, along with achieving best elegant and classic looks.

There are several U.S. Patents available, however, all of them present certain problems and do not fulfill the need for a better diamond cut.

U.S. Patent No. 2,364,031 to Suderov presents brilliant type cut diamond and a method of cutting it. The diamond cut in this prior art has a table that is in the form of a twelve-sided polygon. The angles of inclination are significantly different in the present invention.

U.S. Pat. No. 3,763,665 to Polakiewiz presents a brilliant cut diamond. This prior art has an octagonal table, eight small facets in a shape of a trapezoid with a large base, eight triangular facets having as its base the large base of the above small facets, eight quadrangular facets, eight pairs of generally trapezoidal facets and several other pairs of either triangular or trapezoidal facets in pairs of eight. The present invention, having a significantly different angle of inclination, between the facets and the girdle plane.

U.S. Pat. No. 4,020,649 to Grossbard presents a brilliantized step cut diamond, where the cut has a step cut crown having multiple facets and a brilliant cut pavilion. The present invention has different angles of inclination of the facets.

U.S. Pat. No. 5,970,744 to Greeff discloses a cut cornered mixed cut gemstone, which has a step cut crown and a brilliant cut pavilion. The crown has two steps, a table, and a girdle. The crown and the pavilion are substantially square with four equal sides and corners about 1/3 the length of the sides. The present invention has angles of inclination of the facets, with the girdle to enhance the brilliance of the girdle.

U.S. Pat. Nos. Des. 141,258, 141,259 and 143,470 to Fine teaches a brilliant cut gemstone having a multitude of facets in its crown with several corner facets and upper girdle

5 facets.

U.S. Pat. No. 6,430,963 by the present inventions discloses a mixed cut diamond.  
However, the angles of inclination of the facets are significantly different.

10 While the prior art of a diamond cuts are of a significant interest, it does not address a  
specific need of a particular way of having a gemstone cut, that achieves brilliancy, scintillation  
and dispersion coefficients that are the same as the present invention. The present invention  
addresses a brilliant gemstone cut that achieve excellent coefficients for many characteristics of a  
gemstone, and cut to provide space for the prong of a setting, without interfering with the  
brilliance of the upper corner facets.

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5      **SUMMARY OF THE INVENTION**

        The present invention is directed towards a gemstone cut.

        The main object of the present invention is to provide a brilliant cut gemstone, with a brilliant cut crown, girdle and a brilliant cut pavilion.

10          It is another object of the present invention to provide a brilliant cut gemstone that provides good brilliancy and scintillation.

        It is another object of the present invention to provide a brilliant cut gemstone having a brilliant cut crown that has an octagon-shaped flat table and a octagon-shaped girdle, with facet angles providing for great brilliance.

15          It is another object of the present invention to provide a brilliant cut gemstone having a brilliant cut crown that has lower girdle facets, with a angle providing greater brilliance.

        It is another object of the present invention to provide a brilliant cut gemstone having corner facets, and an inclination angle providing greater brilliance.

20          It is another object of the present invention to provide a brilliant cut gemstone having a brilliant cut pavilion having bezel facets where the angles of inclination to provide greater brilliance.

        Other objects of the present invention might become apparent from the foregoing description.

25          It is another object of the invention to provide a brilliant cut gemstone having a space between the girdle and the upper corner facets for setting prongs.

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## 5 BRIEF DESCRIPTION OF THE DRAWINGS

The following description of preferred embodiment of the present invention will be better understood when read in conjunction with the appended drawings. It should be understood, however, that the invention is not limited to the precise arrangements shown in which:

10 FIG. 1 is perspective view of the top of the gemstone cut showing a crown with a flat table and crown facets.

FIG 2 is perspective view of the bottom of the gemstone cut showing a pavilion with a point culet, bezel star and its facets, and lower girdle facets.

FIG 3 is a side view of the gemstone cut showing a crown, a girdle and a pavilion with all of their respective facets.

15 FIG 4 is a side view of the gemstone cut showing a crown, a girdle and a pavilion with a flat culet facet.

FIG 5 is a perspective view of the gemstone cut in FIG 4, shown from the bottom.

FIG 6 shows the angles of the facets with respect to plane of the table.

FIG 7 shows a prong of the setting covering edge line 25.

## 5 DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

The present invention relates to a new gemstone cut. The present invention would be better understood in conjunction with a following description of a preferred embodiment. However, it is understood by one skilled in the art that the present invention is not limited to the  
10 above referenced specific embodiment, but other embodiments are allowable, provided they are within the scope and spirit of the following claims.

In the following description, references to the drawings, certain items are used for conciseness, clarity and comprehension. It is assumed by one skilled in the art that there are to be no unnecessary limitations implied from the such references, besides the limitations imposed  
15 by the prior art, because such terms and references are used for descriptive purposes only and intended to be broadly construed. Furthermore, the description and the drawings are for illustrative purposes only and not to be construed as limited to the exact details shown, depicted, represented, or described.

For illustrative purposes only, the present invention's preferred mode is a brilliant  
20 gemstone cut, having a brilliant cut crown consisting of a flat table, corner facets and upper girdle facets, a girdle, a brilliant cut pavilion having rib lines, bezel star facets and lower girdle facets, and superior angles of inclination of the facets with the table.

Referring to Fig. 1, a gemstone 10 is shown from the top. The gemstone 10 has a crown  
12. The crown 12 is a brilliant cut crown, having a flat table 16, several upper girdle facets 24  
25 and corner facets 20. The table is shaped as an n-sided polygon. In this particular embodiment, the table 16 is shaped as an octagon. Referring to FIGS. 1 and 2, the table 16 and a girdle 50 are shaped equivalently, i.e., the table and a girdle are both n-sided polygons (e.g., in the pictured Embodiment, both of them are octagons).

Referring to FIG. 1, the table 16 is shown 55% to 60% of the surface of the girdle plane.  
30 The table 16 is in the form of a right octagon having vertices 22. The vertices 22 serve as vertices for upper girdle facets 24, which are five sided polygons having their bases on the girdle's plane. The crown 12 also has corner facets 20, which can also be either equilateral or isosceles triangles. The corner facets 20 have vertices 26, which are spaced from girdle's plane

5 by the point of intersection between upper girdle facets 24. The bases 18 of corner facets 20 are the sides of octagon that encompasses the table 16.

When the stone is mounted in a setting (as shown in Fig.7), a prong 27 of the setting will cover the edge line 25 between upper girdle facets 24 but will not cover the corner facets 20. The setting prongs will therefore not interfere with the reflections of light from the corner facets. The distance between the girdle and the vertex 29 of the upper corner facets, is between 1/10 and 1/5 of the distance between the girdle and the bases 18 of the corner facets 20. By this construction, the prongs of the setting do not interfere with the reflectivity and brilliance of the corner facets.

In one embodiment, the degree of inclination with respect to girdle's plane of corner facets 20 may range from 25-40°. Moreover, the inclination, with respect to the girdle's plane, of the upper girdle facets 24 may range from 30-45°. The present invention is not limited to this particular angular inclinations and it may be obvious to one skilled in the art that other angular inclinations are possible.

Referring to FIG. 2, the gemstone cut 10 is pictured showing its pavilion 30. The pavilion 30 has a culet 38, which in this particular embodiment is a point culet. The pavilion comprises rib lines 36, which subdivide the pavilion into equal pavilion facets. The rib lines 36 run from the girdle plane and converge at the culet 38. The number of the rib lines depends on the number of vertices that the girdle has. In this particular embodiment, there are eight rib lines in accordance with eight vertices of the girdle plane. The pavilion 30 has a bezel star 40, which the rib lines 36 subdivide into equivalent bezel facets 42. In the embodiment, there are eight equivalent facets 42. Each facet 42 is shaped as a diamond with one of its vertices being the culet 38 of the pavilion 30 and the opposite vertex being the vertex of the lower girdle facet 32. The two side adjacent to the vertex, located at the vertex of the of the lower girdle facet 32, are the sides of the corner facets 34. In this embodiment, all of the sides of the bezel star facet 42 are equivalent.

The rib lines 36 create an equal number of equivalent lower girdle facets 32. The lower girdle facets 32 are five-side polygons with its longer sides located on the girdle's plane and two of its sides along the rib lines 36. The inclination of the facets 32 with respect to the girdle's plane in this particular embodiment may range from 50°-68° however, other inclinations may be

possible. The pavilion also contains an even number of corner facets **34** created by the rib lines **36** and the bezel star facets **42**. The corner facets **34** are triangles with their bases adjoining, and, are located along the rib lines **36**. One side of each triangle of the corner facet **34** is along the lower girdle facet **32** and the other side is along the bezel star facet **42**. The number the corner facets **32** is proportional to the number of vertices that the girdle has. The number of the corner facets is twice the number of the vertices. In this particular embodiment, since the number of the vertices is eight, the number of the facets is **16**. Referring to FIG. 2, in this particular Embodiment, the inclination of the bezel star facets **42** with respect to the girdle's plane may range from 38.1° to 43.9°. Moreover, the same embodiment, the inclination of the corner facets **34** with respect to the girdle's plane may range from 40.1° to 46.9°. Finally, the inclination of the lower girdle facets **32** with the respect to the girdle's plane may range from 50° to 68°.

Referring to FIG. 3, the gemstone cut **10** is depicted from its side showing the crown **12** with all of its facets, the girdle **50**, and the pavilion **30** with all of its facets. The girdle **50** has a shape of an n-sided polygon in adherence with the number of the vertices that the table has. Here the girdle **50** is an equilateral octagon. The girdle **50** has small rectangular facets **55**. The length of the side of the facets **55** is either the base of the upper girdle facet **24** or the lower girdle facet **32**. The width side of the girdle facet is a continuation of the rib lines **36**. In one embodiment, the girdle's width may range from 1-2.5% of the total height of the gemstone cut **10**.

In yet other embodiments, referring to FIGS. 4 and 5, a culet may be chosen in a form of a polygon. FIGS. 4 and 5 depict the gemstone cut **10** with octagonal culet **60**. As in the embodiments described above, the rib lines **36** run from the girdle **55** and subdivide the gemstone **10** pavilion **30** into equal parts. However, in this embodiment, the rib lines do not converge at a point, but stop at a culet facet **60**. Each rib line **36** ends in one of the vertices of the octagonal culet facet **60**. Moreover, the bezel star facets **62** assume a shape of a candle-like polygon, where a top portion of such polygon appears to be an isosceles triangle and a bottom portion of such polygon appears to be a equilateral trapezoid.

To further explain the angles of inclination: in FIG. 6A, the angle between the table **16**, (which is a parallel plane to the girdle) and lower girdle facet. **32** is shown to be between 50°-68°. FIG. 6B, shows that the angle between table **16**, and bezel star facet **42**, as between 38.1

5 and 43.9°. FIG. 6C shows that the angle between the table and the corner facets **34** to be 40.1-46.9°. FIG. 6D, shows the angle between the table **16**, and the upper girdle facets **24** to be between 25-40°. Finally, FIG. 6E, shows the angle between the table **16** and the upper corner facets **20**, is 30-45°.

10 These angles provide for the greatest scintillation, and brilliance in diamond cuts because it provides the best angles of reflection for light rays.

The present invention may utilize any precious or semiprecious stones such as diamonds, rubies or any other conventionally known precious or semi-precious stones.

15 In the foregoing description of the invention, reference to the drawings, certain terms, have been used for clarity, conciseness and comprehension. However, no unnecessary limitations are to be implied from or because of the terms used, beyond the requirements of the prior art, because such terms are used for descriptive purposes and are intended to be broadly construed. Furthermore, the description and illustration of the invention are by way of example, and the scope of the invention is not limited to the exact details shown, represented, or described.

20 While the present invention has been described with reference to the specific embodiments, it is understood that the invention is not limited but rather includes any and all changes and modifications thereto which would be apparent to those skilled in the art and which come within the spirit and scope of the appended claims.